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ABSTRACT

The new ACT College Outcomes Survey was used with a national sample of 9,348 undergraduate students to evaluate the effects of the college environment on academic and intellectual development. It compared the outcomes for adult learners with those for younger students. An index score was created that considered both the progress the students reported as well as their assessment of the importance of that aspect of development. Adult and younger students were also compared regarding their involvement and participation in the college environment. Findings indicated adults were much less involved in the campus events and much more involved in caring for their families. Despite this lower level of involvement in the college environment, adults reported slightly higher levels of growth on most academic and intellectual items than did the younger students. Possible explanations are given for the results including other ways adults can integrate what they have learned that takes the place of traditional campus involvement. (Appendixes include 29 references and 3 data tables.) (Author/YLB)

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Comparing Adult Students' Growth in College to
That of Traditional Students

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Abstract

The new ACT College Outcomes Survey was used with a national sample of approximately 15,000 undergraduate students to evaluate the effects of the college environment on academic and intellectual development and to compare the outcomes for adult learners with those for younger students. An index score was created that considered both the progress the students reported as well as their assessment of the importance of that aspect of development. Adult and younger students were also compared regarding their involvement and participation in the college environment. The findings show adults were much less involved in the campus events and much more involved in caring for their families. Despite this lower level of involvement in the college environment, adults reported slightly higher levels of growth on most academic and intellectual items than did the younger students. Possible explanations are given for the results including other ways adults can integrate what they have learned that takes the place of traditional campus involvement.

Comparing Adult Students' Growth in College to That of Traditional Students

Adult learners, once an anomaly in higher education, now make up about 40-45% of the students currently enrolled as undergraduates in higher education (Aslanian, 1988). However, due to the nature of their lives and the multiple roles they assume, they are not often involved in the college environment in the same way that the traditional younger students are. Adult students are more likely to have families, full-time jobs, competing demands on their time, and commute to campus to take classes. Yet, despite these differences, we often rely on earlier research on how college affects traditional students and assume the same things are true for adults -- even though we may intuitively know better.

Some of the most noted researchers are now suggesting that research on college development should focus its attention on the "new learners" in higher education; older students, students of color, and students who attend part-time (Kuh, 1992; Pascarella & Terenzini, 1991). Terenzini (1995) recommended that new research efforts should assess how college affects adult learners and provide information that is helpful to educational policy makers. Feldman (1994) suggested there are limitations to combining nontraditional and traditional-aged students together when examining college outcomes because the issues confronting adults and part-time learners are quite different than those facing traditional-aged, full-time students.

This study investigates the effects of college on the cognitive and career development of adult students and compares their growth to more traditional-aged students who are likely to have different levels of campus involvement. We assess the importance of the areas of development in the eyes of the adult by developing an index that considers both their reported progress and their assessment of the importance of key developmental goals. We also compare the younger and older students' levels of involvement in various campus and out-of-class experiences.

Related Literature

There is a wealth of research indicating higher education clearly has an impact on the students who enroll and actively participate in the college environment. Pascarella and Terenzini (1991) reviewed over 2,500 studies related to college attendance and examined the psychosocial, self-esteem, attitude and moral development that takes place in college. College attendance was associated with significant and "net" increases in several different domains including verbal, quantitative, subject matter, cognitive growth, self-concept and self-esteem, moral development, attitude and value changes. After examining all the evidence, they draw one conclusion that may be seen as startling to many -- that what students experience during college has more impact on the students than the nature of the colleges or universities themselves (Pascarella and Terenzini, 1991).

Despite the fact that this conclusion is in contrast to most lay opinions about college and many of the recent "college rankings" and college admissions brochures, it is consistent with the research done by Alexander Astin (1984, 1993). For years he has advocated the importance of the role of the students' involvement in the total college environment. This involvement can come in a number of ways or activities. But for Astin, it boils down to the fact that for students to get the most out of college, they should become meaningfully and psychologically involved in their college experiences. Astin believes the psychological energy a student invests in the academic experience is one of the most significant aspects in determining growth.

Recent research has also suggested that student learning and personal development are significantly influenced by the quality of relationships between student peers and faculty, and the characteristics of student involvement (Arnold, Kuh, Vesper, & Schuh, 1993; Terenzini, Pascarella, & Blimling, 1996). Students' interpersonal interactions with faculty members can shape and enhance cognitive growth. Students learn from their interactions with peers as well; particularly certain types of activities such as peer tutoring or teaching. Skills developed in one arena are easily linked to related arenas which in turn make students more ready to learn and grow in other areas. This notion is particularly relevant for adult

learners who may miss out on key elements of the college experience and in turn be less ready to grow from other experiences or encounters they have. Further, both academic and social integration are important in developing academic skills and in fostering persistence (Bean, 1990; Terenzini & Wright, 1987).

The need to become meaningfully involved in the college environment may cause problems for the majority of adult learners. They attend college for very practical reasons, often juggling jobs, families, and a host of role expectations (Aslanian & Brickell, 1988; Hughes & Graham, 1990; Kasworm, 1990a). Adults are less likely to become involved in student activities and social groups, and less likely to spend significant amounts of time on campus (Aslanian & Brickell, 1988; Frost, 1991; Kuh, 1993b). Adults are often timid about returning to college and wonder if they still have what it takes to succeed; attitudes that can affect their developmental outcomes. Many adults do not feel they will be as "smart" as traditional-aged students, will not be able to keep pace with younger students, or feel their skills are too rusty to address the demands of college work.

Yet despite these concerns, some research on academic achievement suggests that adults do fairly well. After reviewing over 300 studies on adult undergraduate learners in higher education, Kasworm (1990b) found adult students do as well or better than traditional-aged students based on grades and aptitude/content test performance. Kuh (1993a) found the benefits of attending college did not differ for those who were over the age of 23, attended college part-time, lived off campus, had families or worked more than 20 hours a week. Examining "new majority" students, Arnold, Kuh, Vesper, and Schuh (1993) found a complex relationship between age and part- or full-time enrollment; sometimes these variables had a positive effect on gain scores and in other instances they had negative effects. For example, older students who interacted with peers outside of class showed benefits in general education as well as the arts and the humanities.

If adults are less involved in campus but do as well on standard performance measures like exams and grades then perhaps there are things they do that help compensate for their

different patterns of behavior. Some suggest adult learners may compensate for their initial lack in confidence or rusty skills by attending college with a clear purpose in mind, by bringing a rich background of life experiences to class, by taking the advice of their professors or advisers more seriously than the younger students (Frost, 1991, Kasworm, 1995), or by working harder than the traditional- aged students (Cupp, 1991). One recent hypothesis is that the adults' learning is enhanced by a different type of "involvement," one that focuses on the broader community and their various adult life roles (Graham & Donaldson, 1996).

If college "involvement" has a significant affect on student outcomes, adults may very well experience different outcomes from undergraduate education. This raises a number of questions such as: (1) are adults as highly involved in student activities and out-of-class experiences as younger students? (2) should we expect the same developmental impact for adults as we do younger students who attend college or would we expect different changes in the adults' development? and (3) if there are no differences, should involvement be mandated by college policies? This study attempts to address these issues.

Method

Sample

Data were collected from 15,657 college students between February 1993 and April 1994 at 75 colleges and universities throughout 27 states. The students involved in this study completed the ACT College Outcomes Survey (COS) as part of their institutions' efforts to assess student growth during college and were drawn from private, technical, two-year, and four-year colleges and universities from a variety of geographical regions in the United States. The COS is a questionnaire designed to evaluate the college experience and assess students' perceptions of their growth and preparation in both cognitive and affective areas. Because we were studying the effects of the undergraduate experience, we only included subjects who were working on undergraduate degrees and had completed more than 24 hours of work at the school they were enrolled. This left a subgroup of 9,348 subjects.

Demographic Characteristics. The demographic characteristics of the sample suggest the subjects are representative of many state and private two- and four-year colleges and universities across the country. Approximately two-thirds of the respondents were between the ages of 19-26 with the largest group falling between the ages of 20 and 22 (46%). Approximately 25 percent of the students were studying part-time (less than 12 hours) and most enrolled in colleges in their home state of residence (88%). Sixty percent of the respondents were female and 40% were male. Eighty-six percent classified themselves as "white" with the other 14% identifying themselves as American Indian, Asian, Black, or multiracial. Forty percent of the students were pursuing associate degrees, just over 50% were pursuing bachelor's degrees, and the other 10 % were enrolled in school for other motives. Approximately fifty percent of the students had completed at least 80 hours of college course work before completing the COS and 35% had completed at least 100 hours of college course work.

Measure

The College Outcomes Survey, developed by ACT was used to obtain data for this study. The COS is designed to evaluate the college experience and assess students' perceptions of their growth and preparation in both cognitive and affective areas. The 26 items in the College Outcomes Section, Part A of the survey were used for this analysis. This section measures the cognitive and intellectual growth of students and includes items assessing problem-solving abilities, creativity, speaking and writing skills, intellectual interests, career knowledge, physical and mental health, learning about science and technology, and mathematical and statistical reasoning.

Participants responded to the 26 outcome variables on two different outcome dimensions labeled "importance" and "progress." The first component asks the students to assess the importance of the developmental objective. The responses range from 5 = very great, to 3 = moderate (average), to 1 = none. The second component, progress, was based on "... how much progress you have made at this college toward attainment of that outcome (regardless of its importance to you)." This item is rated on a five point scale where 5 = very great, 3 = moderate

(average), and 1 = none. Participants also responded to several items measuring their "responsibilities and time allocations" according to the amount of time they spent on each type of activity on a weekly basis. To assess the levels of student involvement outside of formal classroom activities, we selected five items associated with involvement in college clubs, college-sponsored events, care of family, off-campus community service, and off-campus cultural events. On these items participants reported the number of hours they spent on the activity each week.

Validity and Reliability. The COS was developed based on research from the college outcomes literature and designed to measure college student perceptions of their growth and preparation in cognitive and affective areas near the completion of their programs of study. Both two- and four-year institutions helped develop the instrument along with the National Council for Student Development. An early version of the COS was pilot-tested nationwide on several thousand two- and four-year students and refinements were made according to the pilot-test results (College Outcomes Survey Preliminary User Norms, 1993). In addition, components of the early version of the COS were correlated to comparable components of the ACT COMP instrument, an instrument that specifically measures student growth in college. Subsequent longitudinal studies conducted by Steel and Nichols (1992) indicated students' perceptions of their growth were clearly related to their actual growth as measured by the COMP instrument. (G. McLure, personal communication, April 28, 1995).

Reliability estimates were established using generalizability theory because of the multidimensionality of the COS and the possible uses of the instrument (e.g., individual, college, or outcome variable comparisons). For this particular study the comparison is based on average student ratings of various outcome variables where the variables are the object of analysis with students as the source of error. Analysis for this type of comparison yielded generalizability coefficients that ranged from .97 with groups of 200 to .99 with groups of 500 (Sun, 1995).

Analysis

To assess both student growth and to consider the importance of the growth to students we created an index using the two variables measuring "importance" and "progress" of a students' assessment of growth for the 26 items assessing broad cognitive and career growth outcomes. This index was computed by multiplying the "progress" (PR) variable rating by a proportion that represents the relative "importance" (IM) of the growth. That proportion was determined by dividing the IM variable rating by 5 -- the highest possible rating. For example, if a student rated the IM variable 4 and the PR variable 3, the calculation would yield a derived index score of 2.4 (i.e., 4 divided by 5, multiplied by 3). This combined score is then transformed into a standard scale score with a maximum value of 100. This index score then provides a combined estimate of both the progress in development occurring during college and the importance of the area to the students (G. Pike, personal communication, March 24, 1995). To determine a "tangible level of impact" on the 26 different items we selected an individual mean score of "3" or higher and an index score of 36. This would indicate at least a "moderate" effect on the outcomes as rated by the students.

We conducted additional analyses to compare the adult learners to the younger students on variables measuring responsibilities and time allocations for involvement in college clubs and organizations (political, social, religious), college-sponsored events (e.g. plays, exhibits, sports), care of family (e.g., spouse, child, relative), off-campus community services (e.g., religious, civic) and off-campus cultural events (e.g., theater, music, exhibits). Because the variables measuring involvement in activities outside of class were not continuous in nature, we used a chi-square statistic to test the relationships. Due to the large number of subjects we set the alpha value for determining significance at .001.

We compared the mean and index scores on the outcome variables for adult learners to those of the younger students to see if substantive differences were reported for the two types of learners. For this comparison we chose not to use traditional tests of statistical significance to make the comparisons due to the size of our sample. That is, with large numbers of subjects

even trivial differences between groups will be statistically significant since tests of statistical significance are a function of sample size. Instead, we identified "benchmarks" to compare the differences we observed between the adults and the younger students. To give us these benchmarks, we examined differences present in other groups that should theoretically report different scores. For example, we compared males to females, looked at student involvement in campus activities and organizations outside of class, and school size. In this way we were able to determine benchmarks to tell if the differences between younger and older students were really important ones.

Results

Comparing the mean scores of the adult to traditional-aged students shows that generally the differences were slight between the two groups. The differences between the mean scores for both the PR and IM variables ranged from .0 to .20 on a five-point scale (11 of 26 "progress variables" showed differences less than .10). Furthermore, in examining the "progress" variables adults had higher mean scores than traditional-aged students in 22 of the 26 comparisons (see Table 1).

Insert Table 1 about here

When comparing the younger students to the adults with respect to involvement in activities outside the classroom there were statistically significant differences for all five variables. The largest differences were observed in responses to involvement in (1) college clubs and organizations where adults showed less involvement in every category; (2) college sponsored events where adults reported less involvement in each category; and in (3) caring for the family where adults reported much higher rates of involvement. Statistically significant differences were also found in the items assessing involvement in off-campus community services and off-campus cultural events with younger students reporting lower rates of involvement (see Table 2).

Insert Table 2 about here

Contrasting the index scores of the adult students to those of the younger students showed very similar index values for all 26 variables. The differences between index scores only ranged from 1 to 4 points on a scale with a maximum value of 100 with most comparisons varying only by one to two points (see Table 3).

Insert Table 3 about here

Conclusions

We found the development for adult learners to be comparable to that of younger students across all areas of cognitive and career development. Older and younger students responded in very similar ways in indexes measuring both the importance and the progress made on cognitive and career development. The indexes values for adults were slightly higher than those of the younger students on 22 of the 26 items, yet the variances do not likely represent discrepancies of any practical value. This evidence substantiates preliminary findings by Kuh (1993a) when he found the benefits of college did not differ for those who were over the age of 23, lived off-campus, or had families. The findings are also consistent with Kasworm's (1990b) review of performance measures for adult learners and Cupp's (1991) preliminary findings from interviews with adult learners. These findings are also consistent with the comparison of the social and emotional development of both younger and older students (Graham & Donaldson, 1996).

When we compared the adults' level of involvement in the college environment outside the college classroom to that of younger students, adults were much less involved in campus activities and much more likely to be involved in caring for family. The adults were also slightly more involved in off-campus community service or cultural events than the younger students.

So, despite the different levels of out-of-class campus involvement, adult learners report the same level of growth on cognitive and academic indicators as that of the younger students. These findings suggest that the adults' lack of involvement in campus-based activities does not appear to have a detrimental effect on the growth outcomes they report.

These results somewhat complicate the findings of recent literature on traditional student development and college outcomes that focus heavily on the notion of "involvement" in the living and learning community. They suggest that adult learners perceive their development to be akin to that of younger traditional students even though they have very different types of involvement both on- and off-campus. One plausible explanation is that campus involvement provides an "authentic learning" context for students as a means of integrating learning that takes place in the classroom into a real life setting (Anderson & Armbruster, 1990). Adults may still experience the same types of growth from the college experience because they are able to link their learning in other authentic contexts; that is, in their roles as parents, community members, as supervisors at work, or within roles in social clubs and relationships. Furthermore, many have already noted that to enhance learning adults tie the new material to previous knowledge to make connections to existing schema (Cervero, 1988; Merriam & Cafferella, 1991). They see new information gleaned from classes in light of what they already have experienced and can reflect on earlier leadership opportunities and adult life roles they have experienced.

This research does not compare adults who are not actively involved with the campus environment with those who are. Consequently, it begs the question as to whether active involvement would offer additional benefits for the adult students. In fact, there is some research that has suggested that campus involvement is also beneficial for adults. For example, Kasworm and Blowers (1994) found that traditional definitions of involvement appear to apply to adults when they enrolled on a full-time basis. Patterns of enrollment are also changing for adult learners today, with more adults enrolling full-time and more younger students enrolling part-time or stopping out to address family or work needs. Further research could compare similar groups of adults with different levels of out-of-class experiences to see if adults benefit from the campus

involvement in addition to the aspects of their life roles noted above. This would provide more evidence as to whether adults should be strongly encouraged to become involved in campus life to some minimum level.

The research of Kasworm and Blowers (1994) supports a reconceptualization of the notion of involvement for adults. They suggest that it occurs across the adults' life role contexts of work, family, and college. Our findings provide support to their work and others (Chartrand, 1990, 1992; Donaldson, 1989; Kasworm, 1995) arguing for a reconceptualization of involvement and social integration for adult undergraduate students. It also raises a number of questions about the definitions of involvement and social integration for adult students, the impact instruction has on this integration, and whether our distinctions between adult and younger students are the appropriate ones to make.

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Table 1

Mean Scores for Individual Items for Adult and Younger Students

Students' cognitive and career development	<u>Importance</u>		<u>Progress</u>	
	Adult	Younger	Adult	Younger
1. Acquire knowledge & skills for career	4.60	4.61	4.05	3.83
2. Become competent in major	4.60	4.62	3.97	3.82
3. Learning to think and reason	4.47	4.46	3.93	3.81
4. Develop problem-solving skills	4.33	4.25	3.80	3.65
5. Drawing concl. after weigh evidence	4.25	4.16	3.79	3.63
6. Listen to what others have to say	4.24	4.21	3.74	3.66
7. Think objectively about beliefs/values	4.21	4.17	3.73	3.66
8. Locating, sreening and organiz. info.	4.15	4.02	3.72	3.56
9. Speaking more effectively	4.13	4.14	3.54	3.42
10. Develop openness to new ideas/practices	4.10	4.05	3.73	3.59
11. Effectively using technology	4.08	4.11	3.39	3.40
12. Develop creativity & original ideas	4.05	4.04	3.50	3.38
13. Learn to reshape life goals	4.05	3.95	3.64	3.45
14. Further study skills	4.03	4.00	3.59	3.39
15. Develop effective job-seeking skills	4.01	4.19	3.17	3.08
16. Learning about career options	4.01	4.18	3.23	3.20
17. Broading intellectual interests	3.97	3.93	3.58	3.44
18. Read with speed and comprehension	3.94	3.86	3.29	3.12
19. Improving writing skills	3.93	3.90	3.61	3.42
20. Applying scientific knowledge & skills	3.84	3.72	3.38	3.22
21. Learn improve mental & physical health	3.83	3.82	3.24	3.18
22. Discovering rewarding uses for talents	3.72	3.79	3.12	3.15
23. Learn role of science & technology in environ.	3.67	3.57	3.22	3.13
24. Understand/apply math & statistical reasoning	3.58	3.51	3.20	3.15
25. Learn principles improve global environ.	3.54	3.63	2.85	2.89
26. Appreciate arts/literature/humanities	3.37	3.38	3.05	3.08

Total N's were approximately 9,100 for each item

Table 2

Percentages and Chi-Square Values Comparing
Older and Younger Students

Involvement in:	Average Total Hours Spent Weekly*				DF	Chi-square
	0	1-5	6-10	11-15 & Over		
College Clubs And Organizations	64/45	29/37	5/11	2/7	3	342.14**
College Sponsored Events	77/50	21/39	1/5	1/6	3	695.74**
Care Of The Family	23/67	7/13	6/6	64/15	3	2,437.49**
Off-Campus Community Services	47/56	40/36	9/5	5/2	3	130.64**
Off-Campus Cultural Events	47/51	44/40	6/6	3/3	3	20.66**

*Note: First number is the percentage for students age 24 or older, second number is the percentage is for students age 23 or younger.

**p<.0001

Table 3

Mean Index Scores for Adult and Younger Students

Students' Cognitive and Career Development (combined index for importance and progress)	Adult Students	Younger Students
1. Acquire knowledge & skills for career	75.25	71.38
2. Become competent in major	73.89	71.19
3. Learning to think and reason	71.20	68.88
4. Develop problem-solving skills	66.90	62.99
5. Drawing concl. after weigh evidence	65.47	61.54
6. Listen to what others have to say	64.49	62.88
7. Think objectively about beliefs/values	64.33	62.71
8. Locating, sreening and organiz. info.	62.84	58.61
9. Develop openness to new ideas/practices	62.69	59.77
10. Learn to reshape life goals	60.84	56.40
11. Speaking more effectively	59.94	58.05
12. Further study skills	59.26	55.40
13. Broading intellectual interests	58.75	55.68
14. Improving writing skills	58.47	55.01
15. Develop creativity & original ideas	58.24	56.05
16. Effectively using technology	57.14	57.45
17. Applying scientific knowledge & skills	54.25	50.20
18. Read with speed and comprehension	53.36	49.51
19. Learning about career options	53.35	54.47
20. Develop effective job-seeking skills	52.49	52.73
21. Learn improve mental & physical health	51.97	50.64
22. Learn role of science & technology in environ.	49.64	47.12
23. Discovering rewarding uses for talents	48.74	49.62
24. Understand/apply math & statistical reasoning	48.52	46.93
25. Appreciate arts/literature/humanities	44.03	44.76
26. Learn principles improve global environ.	42.63	44.03

Total N's were approximately 9,100 for each item